environmental problems to improve the efficiency of removal of sulfur oxides (SO_x).

Furthermore, the aforesaid desulfurizer 6 employs the so-called lime-gypsum method in which sulfur oxides (SO_x) present in exhaust gas are absorbed with the aid of calcium carbonate used as absorbing agent and recovered in the form of gypsum. This lime-gypsum method has the disadvantage of requiring a large amount of absorbing agent.

Among dry processes, only an adsorption process using active carbon has been put to practical use. However, this adsorption process uses water washing for the purpose of desorption and hence requires a large volume of water. Moreover, this process also involves problems concerning disposal of the resulting dilute sulfuric acid, drying of the adsorbent, and the like.

As described above, in the current practical process for the removal of nitrogen oxides present in exhaust gas from boilers, there is used a denitrator 2 based on the selective catalytic reduction (SCR) method in which nitrogen oxides are decomposed to nitrogen and water vapor by using a catalyst comprising V_2O_5 supported on TiO_2 and a reducing agent comprising NH_3. However, this process involves the following problems. First, a reaction temperature of 300 to 400°C is required because of the performance of the catalyst. Secondly, NH_3 is required for use as reducing agent.